LET'S PRIVATIZE WATER RESOURCE SERVICES

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I once heard Abel Wolman tell a group of engineers that if they ever got a chance to build a dam, do it! I now think better advice would be that, if there is ever an opportunity to privatize a public water function, do it! I am a bit surprised at times to hear myself say this because I received my undergraduate education in natural resources management in an era when the NAWAPA plan for diverting the waters of the Yukon to the lower 48 states was presented by at least one natural resources textbook as a model of water resource planning. By the time I arrived in Washington in the 1960s NAWAPA was slowly being killed by its obscene economics as it should have been. I believed that there was merit in the idea that government could be the vehicle for developing water resources. This, of course, was the Progressive Vision, the Gospel of Efficiency, a viewpoint that had pervaded my education as a conservationist.

As an economist I was prepared to accept the Progressive Vision with the caveat that the benefits of a project should exceed its costs. And I was prepared to execute the benefit-cost analysis and, in time, to participate in improving the Water Resource Council' s Principles and Standards. It was a vision that let me feel at home in Washington in the 1960s but as my experience accumulated I began to realize that bureaus responsible for planning water resource developments at any level of government, while motivated by professional goals and standards, were ultimately interested in increasing their reach, or some would say, their budgets; and the last thing anyone involved wanted to hear was that the economics of a proposed project were unfavorable. Something was seriously wrong with a gospel that trusted professionals, politicians and their clients with water resources and, with little restraint, the funds to develop them.

The 1960s were a part of the period Marion Clawson has called the era of management on the public lands. In water resources it was the end of the big projects and basin-wide development schemes. In no small part this was because, as Walter Langbein, hydrologist par excellence for many years with USGS has pointed out, the nation had run out of the most efficient dam sites. This meant that if there ever had been an economically efficient water resource development project, it had already been built, perhaps in the preceding century and probably with private money. Notwithstanding, the federal government had developed the Colorado, the Columbia, the Tennessee, the Missouri, the Mississippi, and numerous smaller basins with questionable efficiency gains for the nation (but nice gains for local beneficiaries).

Other circumstances have changed as well. Consider the situation in 1907 when William Howard Taft could say with reference to the Grand Valley Project in Colorado that "there are a good many enterprises that involve the outlay of capital so large or require so much risk that it is better that, associated with private enterprise, the government help, too . . . ." In fact, private enterprise had tried and failed to bring water to the Valley. The government project ended up costing far more than was estimated because of the same engineering difficulties that had defeated the private efforts.

Now consider whether a President could make such a claim today about water resource projects when there are many firms of a size that can and do take on large and risky projects, if there is a positive expected payout. As evidence, there are reports that Enron, a private firm, is approaching cities along the Rio Grande offering to manage regional water plans and provide water supplies without taking irrigated land out of production. What Taft should have said, perhaps, and which would surely be echoed today, is that "there are a good many enterprises so bad that only government is willing to undertake them and there is almost no limit to the size of a private undertaking, properly conceived and financed." None of the classic rationale for public involvement in water holds much water any longer, if it ever did.

As an efficiency advocate, I would prefer to see private firms take a much larger hand in dealing with our water resource problems. The more I have seen of the bad economics in water resource undertakings at any level of government, the more firmly I have become

convinced of the importance of economic efficiency. Unless we insist on economically efficient projects, i.e., with benefits greater than costs, we waste funds. The more an economy puts its funds into inefficient projects, the less national output grows until at some point national output will decline. Autocratic and socialist governments typically engage in such "transactions of decline."

The idea behind privatization is that an organization whose bottom line is seeing that costs do not exceed revenues is driven to be efficient. Compare this with the incentives found in an organization that lives with the promise of an ever increasing budget, if they can demonstrate the ability to spend their current budget. The Corps of Engineers and the U.S. Forest service are examples of organizations that live by the perverse incentives of ever increasing budgets. To the Forest Service the payoff has been from road building and timber sales whose costs exceed revenues. The more roads they could build and the more timber they could sell, the more Congress rewarded them with increased budgets. The Forest Service has not been constrained by a need to demonstrate that benefits exceed costs. (For more on the Forest Service check out < http://www.ti.org>)

The Corps of Engineers is driven to expand the public works budget. They have been constrained by the formality of demonstrating that the benefits of a proposed project are not exceeded by project costs. The challenge to the Corps has been to work around the formal constraint. This they have done in a variety of ways, none more clearly demonstrated than the recent case of waterway improvements in the upper Mississippi in which the Corps managers have been shown blatantly to be manipulating the benefit-cost models to turn a veritable pig' s ear into a silk purse. The bottom line for the Corps as stressed in internal memoranda was increasing the budget. (Read the affidavit by Donald Sweeney, a Corps economist, at < http://www.environmentaldefense.org> .)

Municipal water departments would appear on the surface to be driven by efficiency because they depend on revenues from customers. Beginning at least with Hirshleifer, deHaven, and Milliman (1960), study after study has exposed water departments to be models of inefficiency. They have been shown to tolerate leaky distribution systems. They refuse to meter water to customers. They ignore the price elasticity of demand for water. They blithely underprice water at the margin in the belief that expanding use will generate political support for expanding supplies. Temporary and infrequent shortages imposed by drought, though economically justified, are unthinkable. Flashy engineering monuments like dams and interbasin diversions are preferred to more cost effective alternatives like tightening up the efficiency of their systems and of users' behavior.

Water departments have been able to get by with inefficiencies that the private market would not tolerate because they operate as public agencies or as public utilities with guarantees that revenues from all sources, including tax subsidies, will meet their costs. The tax subsidies include direct subventions from the local tax base and the ability to float tax-free bonds. The subsidies include assistance from the federal government in the form of "multiple purpose" reservoirs built by the federal water resource agencies that can spread some of the costs of water supply among other project purposes. We can give credit to municipal beneficiaries for repaying their share of the costs with interest but we dare not look too closely at the rates of interest they are charged. In contrast, flood control, recreation, and navigation beneficiaries don' t directly repay costs and irrigation does not repay the interest costs. And the rules for benefit-cost analysis do require that the value of the municipal water supplies contributed must exceed the federal costs (except in the case of communities under 10,000 population – no small loophole). The federal benefit-cost rules also impose on the planners the requirement of showing that there are no more cost-effective solutions for increasing water supplies than building structures.

For many years into my career I believed that systems analysis and economic rationality properly applied could correct the inefficiencies shown to exist in water supply practice. Systems analysis and economic reasoning enabled us at Resources for the Future in the 1960s to show that there were many superior alternatives to the Corps of Engineers plan for 16 major dams in the Potomac basin, if costs alone were the criterion and maintenance of dissolved oxygen in the estuary was the objective of planning (Davis, 1968). Later, Steve Hanke and I were able to show that given the ability to price water seasonally at its marginal costs, the multiplepurpose water storage projects were an unneeded solution for the Washington, D.C. water supply problems. Daniel Sheer, an independent consultant and Bob McGarry, the head of the Washington Suburban Sanitary Commission were able in the 1980s, together with the local water suppliers and some astute analysts, to put into place a water supply plan for the Washington, D.C. area that depended heavily on systems analysis, pricing, sensible risk management, and a minimum of additional water storage and emergency water treatment facilities. (McGarry, 1983).

The sad truth is that we in the public sector or any political bureaucracy resist innovative ideas that improve efficiency if those ideas represent a change in the way we think about problems, if they require changes in behavioral patterns of the institutions/agencies concerned, and if incentives for the managers don' t change. I think we have learned that the water users, because they face economic incentives in the form of payments for their water, are much more responsive to cost saving ideas than are the managers, because the managers operate with a set of incentives that have more to do with the size of their budgets and maintaining the status quo than with the efficiency of their performance.

It should be indisputable that the solution adopted for Washington, D.C.' s water supply problems was one of those innovations that improve efficiency. While I was teaching at the Ohio State University about ten years ago I gave an invited public lecture on municipal water supply management in which I extolled the virtues of efficient solutions in general and of the Washington, D.C. water supply plan in particular. At this time a local water department was going all out on a plan for more water storage to meet projected demands and stubbornly resisting suggestions for adjusting water rates to reflect marginal costs, for projecting demands with realistic sensitivity to prices, for drought emergency planning with water conservation measures. The game was so serious that some prominent efficiency advocates received subtle threats.

From the Ohio experience I went to a developing country where a water supply plan had to be evaluated. We found that the department in charge of the study wanted dams. They had forbidden the consultants charged with the engineering studies to investigate the feasibility of pumping groundwater, which has since proven to be the superior alternative. From that point on I became an advocate of changing the incentives for the water supply managers. The more they can respond like the managers of General Electric and Intel to problems of demand and supply, the less we will hear about "water crises" and the more we will see appropriate, economically efficient responses to water supply problems.

It might be objected that water utilities are natural monopolies that will gouge their customers if they operate as private companies. I don' t believe this. Their customers will regulate them, if they get out of line. And besides, they will have a franchise from some level of government to keep them responsible. I believe the greater risk is that a private company will be intimidated from charging its customers the long-run cost of water supplies at the margin simply because they wear a political leash. This will be unfortunate because without marginal cost pricing, the true worth of water supply to the users cannot be known and overbuilding will be the consequence.

I do not believe the future is black. Our engineers and managers are competent, if perversely challenged. Municipal governments have learned to privatize functions through contracting and franchising. There are private water companies with long records of efficient service. A committee appointed by the National Research Council is currently studying the pros and cons of private municipal water services. As long as a company like Enron sees opportunities to compete with the public agencies in solving water supply problems, there is hope. It is necessary, however, for us to be willing to allow competition from new ideas and new entrants into the field of providing water services.

Robert K. Davis, fresh out of Harvard with a Ph. D. in economics, entered the water field because RFF wanted a new gun to perform a systems analysis of the Corps of Engineers 1962 plan for developing the water resources of the Potomac River Basin. There followed a career of analyzing many other plans for channelization, irrigation, municipal and industrial water supply as an employee of national and international organizations and the U.S. Department of Interior. He has taught, written, and lectured on water resource economics. Currently he serves on a National Research Council committee charged with evaluating the state of ecosystem science for managing the Missouri River. For the past 10 years he has been affiliated with the Institute of Behavioral Sciences, University of Colorado at Boulder.

REFERENCES

Davis, Robert K. 1968. *The Range of Choice in Water Management*. Baltimore: The Johns Hopkins University Press.

Hirshleifer, Jack, James C. DeHaven, and Jerome W. Milliman. 1960. *Water Supply: Economics, Technology, and Policy*. Chicago: The University of Chicago Press.

McGarry, Robert S. 1983. "Potomac River Basin Cooperation: A Success Story," in National Research Council, *Cooperation in Urban Water Management*. Washington, DC: National Academy Press. pp. 90-102.